

## ABSTRACT

An in-situ plasma measurement probe comprises a primary substrate, such as a silicon wafer, with sensor devices disposed about the surface of the probe. An electronics  
5 module contains electronic components or other elements of the diagnostic probe that require isolation and shielding from the plasma environment. The electronics module is disposed upon the probe substrate and electrically connected to the remote sensor devices through one or more electrical interconnection layers disposed upon the substrate. By  
10 integrating and modularizing the electronic components of a sensor probe, the probe design may be optimized for cost effective production techniques while ensuring mechanical, chemical, and thermal compatibility with the wafer or other carrying substrate and the environment to which it is exposed.